

SUPPLEMENT TO

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Contributions in the Field of Mathematical Physics**

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- IOTOV, MIHAIL S. and IVAN T. TODOROV, On the universal R -matrix for

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- JING NAIHUAN, GE MO-LIN, and WU YONG-SHI, A new quantum group associated with a 'nonstandard' braid group representation, **21**: 193 (1991).
- JØRGENSEN, MICHAEL F., *see* CHRISTIANSEN, PETER L.
- JOSHI, G. C., *see* HANLON, B. E.
- JOSHI, NALINI, DAMIEN BURTONCLAY, and RODNEY G. HALBURD, Nonlinear nonautonomous discrete dynamical systems from a general discrete isomonodromy problem, **26**: 123 (1992).
- JOSHI, P. S. and I. H. DWIVEDI, The structure of naked singularity in self-similar gravitational collapse: II, **27**: 235 (1993).
- JURČO, BRANISLAV, Differential calculus on quantized simple lie groups, **22**: 177 (1991).
- JURČO, BRANISLAV, On coherent states for the simplest quantum groups, **21**: 51 (1991).
- JURČO, BRANISLAV, *see* DRABANT, BERNHARD
- JURIEV, D., An explicit form of the vertex operators in two-dimensional $SL(2, \mathbb{C})$ -invariant field theory, **21**: 113 (1991).
- JURIEV, D., Infinite-dimensional geometry and closed string-field theory, **22**: 1 (1991).
- JURIEV, D., Infinite-dimensional geometry and generally covariant quantum closed string-field theory, **22**: 11 (1991).
- JURIEV, D., The explicit form of the vertex operator fields in two-dimensional quantum $SL(2, \mathbb{C})$ -invariant field theory, **22**: 141 (1991).
- KALAYCI, J., *see* DIBEKCI, D.
- KAORU IKEDA, The Hamiltonian systems on the Poisson structure of the quasi-classical limit of $GL_q(\infty)$, **23**: 121 (1991).
- KAPAEV, A. A. and A. V. KITAEV, Connection formulae for the first Painlevé transcendent in the complex domain, **27**: 243 (1993).
- KARIMIPOUR, V., Representations of the coordinate ring of $GL_q(3)$, **28**: 207 (1993).

- KAZUYUKI FUJII, A relation between instantons of Grassmann σ -models and Toda equations: II, **25**: 203 (1992).
- KELLER, GEORG, Fusion rules of $U_q(\mathfrak{sl}(2, \mathbb{C}))$, $q^m = 1$, **21**: 273 (1991).
- KEMPF, ACHIM, Quantum group-symmetric Fock spaces with Bargmann-Fock representation, **26**: 1 (1992).
- KEPHART, THOMAS W. and YUAN TZU CHIANG, Discrete monopoles and instantons over projective spaces, **21**: 301 (1991).
- KHOROSHKIN, S. M. and V. N. TOLSTOY, The uniqueness theorem for the universal R -matrix, **24**: 231 (1992).
- KIBLER, M. and M. DAOUD, Sum rules for multi-photon spectroscopy of ions in finite symmetry, **28**: 269 (1993).
- KIJOWSKI, J. and G. RUDOLPH, Spinor electrodynamics in terms of gauge-invariant quantities, **29**: 103 (1993).
- KING, CHRISTOPHER, Exponential decay near resonance, without analyticity, **23**: 215 (1991).
- KING, CHRISTOPHER, Scattering theory for a model of an atom in a quantized field, **25**: 17 (1992).
- KIRILLOV, A. N., *see* BEGIN, L.
- KITAEV, A. V., Quadratic transformations for the sixth Painlevé equation, **21**: 105 (1991).
- KITAEV, A. V., *see* KAPAEV, A. A.
- KITTANEH, FUAD, Norm inequalities for fractional powers of positive operators, **27**: 279 (1993).
- KIVELSON, S. A., *see* CHAKRAVARTY, S.
- KLIMČÍK, C., 'In' and 'out' vertex operators in a class of UV-finite nonlinear σ -models, **21**: 23 (1991).
- KLIMEK, SLAWOMIR and ANDRZEJ LESNIEWSKI, A Golden-Thompson inequality in supersymmetric quantum mechanics, **21**: 237 (1991).
- KLIMEK, SLAWOMIR and ANDRZEJ LESNIEWSKI, Quantum Riemann surfaces: II. The discrete series, **24**: 125 (1992).
- KLIMYK, A. U., *see* BURBAN, I. M.
- KLIMYK, A. U., *see* GAVRILIK, A. M.
- KONOPELCHENKO, BORIS, *see* CARROLL, ROBERT
- KOSMANN-SCHWARZBACH, Y., *see* BANGOURA, M.
- KUKSIN, SERGEJ B., *see* BIKBAEV, RAMIL F.
- KUMAR, ALOK, JNANADEVA MAHARANA, and GAUTAM SENGUPTA, Krichever-Novikov formulation of topological conformal field theory, **23**: 271 (1991).
- KUPERIN, YU. A., YU. B. MELNIKOV, and S. P. MERKURIEV, Total S -matrix and adiabatic amplitudes for the three-body problem, **21**: 97 (1991).
- KURASOV, P. B., Zero-range potentials with internal structures and the inverse scattering problem, **25**: 287 (1992).
- KVITSINSKY, ANDREI A. and SETH PUTTERMAN, Adiabatic dynamics for a class of quantum Hamiltonians, **21**: 133 (1991).
- LANDAU, LAWRENCE J., Experimental tests of distributivity, **25**: 47 (1992).
- LANGMANN, E., *see* GROSSE, H.
- LAOUES, M., Linear operators in Clifford algebras, **23**: 325 (1991).

- LEITES, DIMITRY A., *see* FLOREANINI, ROBERTO
- LEMBERGER, PIRMIN and NICOLAS MACRIS, Long-range order in a simple model of interacting Fermions, **28**: 295 (1993).
- LERNER, E. YU. and M. D. MISSAROV, P -adic conformal invariance and the Bruhat-Tits tree, **22**: 123 (1991).
- LESNIEWSKI, ANDRZEJ, *see* KLIMEK, SŁAWOMIR
- LEVENDORSKIĬ, SERGE Z., On PBW bases for Yangians, **27**: 37 (1993).
- LEVENDORSKIĬ, SERGE, YAN SOIBELMAN, and VLADIMIR STUKOPIN, The quantum Weyl group and the universal quantum R -matrix for affine Lie algebra $A_1^{(1)}$, **27**: 253 (1993).
- LEWIS, A. D., Lagrangian submanifolds and an application to the reduced Schrödinger equation in central force problems, **25**: 189 (1992).
- LIEB, ELLIOTT H. and JAN PHILIP SOLOVEJ, Quantum coherent operators: a generalization of coherent states, **22**: 145 (1991).
- LIEB, ELLIOTT, *see* FLATO, MOSHÉ
- LINDBLAD, GÖRAN, Fokker-Planck equations for eigenstate distributions, **25**: 161 (1992).
- LINKS, J. R. and M. D. GOULD, Two variable link polynomials from quantum supergroups, **26**: 187 (1992).
- LINKS, J. R., M. D. GOULD, and I. TSOHANTJIS, Baxterization of the R -matrix for the adjoint representation of $U_q[D(2, 1; \alpha)]$, **27**: 51 (1993).
- LIU KE-QIN, Characterizations of the quantum Witt algebra, **24**: 257 (1992).
- LIU XU-FENG, *see* GE MO-LIN
- LIU XU-FENG, *see* GUO MAO-ZHENG
- LIU ZHANG-JU and XU PING, On quadratic Poisson structures, **26**: 33 (1992).
- LLEDÓ, M., I. MARTÍN, A. RESTUCCIA, and A. MENDOZA, Yang-Mills instantons over Riemann surfaces, **24**: 275 (1992).
- LÓPEZ, CARLOS, *see* CARINENA, JOSÉ F.
- LU ZHI-CHENG, Star-products and phase space realizations of quantum groups, **25**: 51 (1992).
- LU ZHICHENG, *see* FLATO, MOSHÉ
- LYAKHOVSKY, V. D., N. N. SHTYKOV, and D. V. VASSILEVICH, Dewitt-Schwinger expansion for projective and Grassmann spaces, **21**: 89 (1991).
- MA ZHONG-QI and D. H. TCHRAKIAN, Wu-Yang fields, **26**: 179 (1992).
- MACRIS, N. and J. V. PULE, Density of states of random Schrödinger operators with a uniform magnetic field, **24**: 307 (1992).
- MACRIS, NICOLAS, *see* LEMBERGER, PIRMIN
- MAEDA, YOSHIAKI, *see* OMORI, HIDEKI
- MAHARANA, JNANADEVA, *see* KUMAR, ALOK
- MAISCHAK, MATTHIAS, The gravitational anomalies in de Sitter space, **25**: 307 (1992).
- MAJID, SHAHN, Braided groups and algebraic quantum field theories, **22**: 167 (1991).
- MAJID, SHAHN, *see* BRZEZIŃSKI, TOMASZ
- MANDA, DRAGOS, *see* BOUTET DE MONVEL-BERTHIER, ANNE
- MARTÍN, I., *see* LLEDÓ, M.

- MARTÍNEZ, EDUARDO, *see* CARINENA, JOSÉ F.
- MARTELLINI, MAURIZIO, *see* BONACINA, GIUSEPPE
- MARTIN, CHRISTIANE and ALAIN PIARD, Nonbounded indecomposable admissible modules over the Virasoro algebra, **23**: 319 (1991).
- MARTIN, I., *see* MENDOZA, A.
- MASATO OKADO, Solvable face models related to the Lie superalgebra $sl(m|n)$, **22**: 39 (1991). (Addendum, **23**: 333 (1991).)
- MATHIEU, P., *see* BEGIN, L.
- MATOS, TONATIUH and PETRA WIEDERHOLD, $Sl(4, \mathbb{R})$ -invariant chiral fields, **27**: 265 (1993).
- MATSUI, SHIN'YA, Note on an example of a zero viscosity limit for Navier-Stokes flows with the initial boundary layer in the disk, **29**: 281 (1993).
- MCCARTHY, JIM, *see* BOUWKNEGT, PETER
- MELNIKOV, YU. B., *see* KUPERIN, YU. A.
- MENDOZA, A., A. RESTUCCIA, and I. MARTIN, Reduction of 4-dim self-dual super Yang-Mills equations onto super Riemann surfaces, **21**: 221 (1991).
- MENDOZA, A., *see* LLEDÓ, M.
- MERKULOV, SERGEY A., Quaternionic, quaternionic Kähler, and hyper-Kähler supermanifolds, **25**: 7 (1992).
- MERKURIEV, S. P., *see* KUPERIN, YU. A.
- MICHOR, PETER W., *see* CAP, ANDREAS
- MICKELSSON, JOUKO, Hilbert space cocycles as representations of $(3+1)$ -D current algebras, **28**: 97 (1993).
- MICKELSSON, JOUKO, Sato's universal Grassmannian and group extensions, **22**: 131 (1991).
- MICKELSSON, JOUKO and S. G. RAJEEV, Deformation of current algebras in $3+1$ dimensions, **21**: 173 (1991).
- MISSAROV, M. D., Invariant manifolds of p -adic renormalization groups, **27**: 149 (1993).
- MISSAROV, M. D., *see* LERNER, E. YU.
- MÖDRITSCH, W., *see* SEKE, J.
- MOLEV, A. I., Representations of twisted Yangians, **26**: 211 (1992).
- MOLIN, PAUL, Application of the star-product method to the angular momentum quantization, **25**: 213 (1992).
- MORCHIO, G., *see* ACERBI, F.
- MOSCHELLA, U., A note on gauge symmetry breaking, **24**: 155 (1992).
- MOSCHELLA, U. and F. STROCCHI, The choice of test functions in gauge quantum field theories, **24**: 103 (1992).
- MUCIÑO, J., *see* BAUTISTA, R.
- MÜLLER-HOISSEN, FOLKERT, *see* DIMAKIS, ARISTOPHANES
- NACHTERGAELE, B., *see* FANNES, M.
- NAKAMURA, SHU, *see* JENSEN, ARNE
- NAKASHIMA, M., *see* ALCALDE, C. A.
- NAKASHIMA, M., *see* CADAVID, A. C.
- NARNHOFER, HEIDE, An ergodic Abelian skeleton for quantum systems, **28**: 85 (1993).

- NARNHOFER, HEIDE and W. THIRRING, KMS states for the Weyl algebra, **27**: 133 (1993).
- NARNHOFER, H. and W. THIRRING, Errata to: Algebraic ' K -systems' **20**, 231 (1990), **22**: 81 (1991).
- NARNHOFER, H., *see* BENATTI, F.
- NATARAJAN, LOKI, ENRIQUETA RODRÍGUEZ-CARRINGTON, and JOSEPH A. WOLF, Differentiable structure for direct limit groups, **23**: 99 (1991).
- NAZAROV, M. L., Quantum Berezinian and the classical Capelli identity, **21**: 123 (1991).
- NEIROTTI, J. P. and G. A. RAGGIO, Maximizing relative entropy at given energies, **29**: 33 (1993).
- NELSON, JEANETTE, *see* BONACINA, GIUSEPPE
- NIKOLOVA, LORA and V. A. RIZOV, Generalized connection forms in the unification of gauge interactions, **25**: 149 (1992).
- NILL, FLORIAN, Fusion structures from quantum groups: II. Why truncation is necessary, **29**: 83 (1993).
- NOVOZHILOV, YU. V. and D. V. VASSILEVICH, Induced classical gravity, **21**: 253 (1991).
- O'CARROLL, MICHAEL and EMMANUEL A. PEREIRA, Correlation function formulas for some infrared asymptotic-free scalar field lattice models via the Block renormalization group, **25**: 29 (1992).
- OGIEVETSKY, O., Differential operators on quantum spaces for $GL_q(n)$ and $SO_q(n)$, **24**: 245 (1992).
- OGIEVETSKY, O. and B. ZUMINO, Reality in the differential calculus on q -Euclidean spaces, **25**: 121 (1992).
- OGIEVETSKY, O., W. B. SCHMIDKE, J. WESS, and B. ZUMINO, Six generator q -deformed Lorentz algebra, **23**: 233 (1991).
- OGIEVETSKY, O., *see* EWEN, H.
- OGURISU, OSAMU, Ground state of a spin 1/2 charged particle in an even-dimensional magnetic field, **29**: 249 (1993).
- OHN, CH., A $*$ -product on $SL(2)$ and the corresponding nonstandard quantum- $U(\mathfrak{sl}(2))$, **25**: 85 (1992).
- OLSHANSKI, G. I., Quantized universal enveloping superalgebra of type Q and a super-extension of the Hecke algebra, **24**: 93 (1992).
- OMORI, HIDEKI, YOSHIKI MAEDA, and AKIRA YOSHIOKA, Existence of a closed star product, **26**: 285 (1992).
- OZBEK, H., *see* DIBEKCI, D.
- PALEV, T. D., A superalgebra morphism of $U_q[OSP(1/2n)]$ onto the deformed oscillator superalgebra $W_q(n)$, **28**: 321 (1993).
- PALEV, T. D. and N. I. STOILOVA, On a possible algebra morphism of $U_q[osp(1/2n)]$ onto the deformed oscillator algebra $W_q(n)$, **28**: 187 (1993).
- PARASHAR, PREETI, *see* DOBREV, V. K.
- PASTUR, L. A., On the universality of the level spacing distribution for some ensembles of random matrices, **25**: 259 (1992).
- PEDRONI, MARCO, *see* CASATI, PAOLO
- PEREIRA, EMMANUEL A., *see* O'CARROLL, MICHAEL

- PERRET, R. E. C., Dual formulation of classical W -algebras, **27**: 27 (1993).
- PERRIN, M., *see* BURDET, G.
- PETZ, DÉNES, Entropy, the central limit theorem and the algebra of the canonical commutation relation, **24**: 211 (1992).
- PETZ, DÉNES and GABOR TOTH, The Bogoliubov inner product in quantum statistics, **27**: 205 (1993).
- PIARD, ALAIN, *see* MARTIN, CHRISTIANE
- PILCH, KRZYSZTOF, *see* BOUWKNEGT, PETER
- PINCZON, GEORGES, *see* BONNEAU, PHILIPPE
- POPOV, A. D., *see* IVANOVA, T. A.
- PREŠNAJDER, P., *see* GROSSE, H.
- PRESSLEY, ANDREW, *see* CHARI, VYJAYANTHI
- PULE, J. V., *see* MACRIS, N.
- PURICE, RADU, *see* BOUTET DE MONVEL-BERTHIER, ANNE
- PUSZ, WIESLAW, On the implementation of $S_\mu U(2)$ action in the irreducible representations of twisted canonical commutation relations, **21**: 59 (1991).
- PUTTERMAN, SETH, *see* KVITSINSKY, ANDREI A.
- QIAN MIN, *see* GUO MAO-ZHENG
- RAGGIO, G. A., *see* NEIROTTI, J. P.
- RAGOUCY, E. and P. SORBA, An attempt to relate area-preserving diffeomorphisms to Kac-Moody algebras, **21**: 329 (1991).
- RAIKOV, GEORGE D., Strong electric field eigenvalue asymptotics for the Schrödinger operator with electromagnetic potential, **21**: 41 (1991). (Errata, **22**: 161 (1991).)
- RAJEEV, S. G., *see* MICKELSSON, JOUKO
- RAMANI, A., *see* TAMIZHMANI, K. M.
- RAMOS, EDUARDO, *see* FIGUEROA-O'FARRILL, JOSÉ M.
- RAUCH, J. and A. D. RENDALL, Blow-up of test fields near Cauchy horizons, **29**: 241 (1993).
- RAWNSLEY, JOHN, Exact symplectic structures and a classical model for the Dirac electron, **24**: 331 (1992).
- RAWNSLEY, JOHN, *see* CAHEN, MICHEL
- REINA, CESARE, *see* FRANCO, DAVIDE
- REITBERGER, CHRISTIAN, *see* GRÜBL, GEBHARD
- RENDALL, A. D., *see* RAUCH, J.
- RESHETIKHIN, NICOLAI, Jackson-type integrals, Bethe vectors, and solutions to a difference analog of the Knizhnik-Zamolodchikov system, **26**: 153 (1992).
- RESHETIKHIN, NICOLAI, The Knizhnik-Zamolodchikov system as a deformation of the isomonodromy problem, **26**: 167 (1992).
- RESTUCCIA, A., *see* LLEDÓ, M.
- RESTUCCIA, A., *see* MENDOZA, A.
- RETAKH, VLADIMIR S., *see* GRAEV, MARK I.
- REYMAN, A., *see* CELEGHINI, E.
- RIDEAU, GUY, On the representations of quantum oscillator algebra, **24**: 147 (1992). (Addendum, **27**: 161 (1993).)
- RIDEAU, GUY, ROBERT L. ANDERSON, and PIOTR W. HEBDA, Canonical quan-

- tization of the Bateman-Morse-Feshbach damped oscillator, **23**: 79 (1991).
- RIDEAU, GUY, *see* ANDERSON, ROBERT L.
- RIDEAU, GUY, *see* IRAC-ASTAUD, MICHÈLE
- RIECKERS, ALFRED, *see* HONEGGER, REINHARD
- RIZOV, V. A., *see* NIKOLOVA, LORA
- ROBASCHIK, D., *see* BORDAG, M.
- RODRÍGUEZ-CARRINGTON, ENRIQUETA, *see* NATARAJAN, LOKI
- ROSENBAUM, M., *see* BAUTISTA, R.
- RUDOLPH, G., *see* KIJOWSKI, J.
- RUFFING, ANDREAS, THOMAS DECK, and MARTIN SCHLICHENMAIER, String branchings on complex tori and algebraic representations of generalized Krichever-Novikov algebras, **26**: 23 (1992).
- SAINT-AUBIN, YVAN, *see* BENOIT, LOUIS
- SAITO, MASAHICO, *see* CARTER, J. SCOTT
- SALMHOFER, MANFRED and ERHARD SEILER, Proof of chiral symmetry breaking in lattice gauge theory, **21**: 13 (1991).
- SAVELIEV, M. V. and P. SORBA, Solution of the Cauchy problem for a continuous limit of the Toda lattice and its superextension, **22**: 119 (1991).
- SCHEUNERT, M., Serre-type relations for special linear Lie superalgebras, **24**: 173 (1992).
- SCHICHL, HERMANN, *see* CAP, ANDREAS
- SCHIRRMACHER, ARNE, The structure of $U_q(\mathfrak{sl}(2, \mathbb{C}))$, **29**: 329 (1993).
- SCHLICHENMAIER, MARTIN, *see* RUFFING, ANDREAS
- SCHLIEKER, MICHAEL, WOLFGANG WEICH, and RALF WEIXLER, Inhomogeneous quantum groups and their quantized universal enveloping algebras, **27**: 217 (1993).
- SCHLIEKER, MICHAEL, *see* DRABANT, BERNHARD
- SCHMIDKE, W. B., *see* OGIEVETSKY, O.
- SCHUBERT, CHRISTIAN, The finite gauge transformations in closed string field theory, **26**: 259 (1992).
- SCHUMANN, R., *see* BORCHERS, H. J.
- SCHUPP, PETER, PAUL WATTS, and BRUNO ZUMINO, Differential geometry on linear quantum groups, **25**: 139 (1992).
- SCHUPP, PETER, PAUL WATTS, and BRUNO ZUMINO, The two-dimensional quantum Euclidean algebra, **24**: 141 (1992).
- SCHWINGER, JULIAN, Casimir effect in source theory II, **24**: 59 (1992).
- SCHWINGER, JULIAN, Casimir effect in source theory III, **24**: 227 (1992).
- SEILER, ERHARD, *see* SALMHOFER, MANFRED
- SEKE, J. and W. MÖDRITSCH, Nonrelativistic calculation of the Lamb shift without applying the dipole approximation, **24**: 115 (1992).
- SENGUPTA, GAUTAM, *see* KUMAR, ALOK
- SEWELL, GEOFFREY L., On the Meissner and Abelian Higgs effects, **22**: 239 (1991).
- SEWELL, G. L., *see* BENATTI, F.
- SHAHN MAJID, Quasi-quantum groups as internal symmetries of topological quantum field theories, **22**: 83 (1991).

- SHARMA, C. S., *see* GRUBB, A.
- SHIBUKAWA, YUICHI and KIMIO UENO, Completely \mathbb{Z} metric R matrix, **25**: 239 (1992).
- SHTYKOV, N. N., *see* LYAKHOVSKY, V. D.
- SIMON, W., *see* BEIG, R.
- SKORIK, SERGEI and VYACHESLAV SPIRIDONOV, Self-similar potentials and the q -oscillator algebra at roots of unity, **28**: 59 (1993).
- SOBCZYK, J. and W. URBANIK, A canonical form of an algebraic equation for genus 3 Riemann surfaces, **21**: 1 (1991).
- SOIBELMAN, YAN, *see* LEVENDORSKII, SERGE
- SOLOVEJ, JAN PHILIP, *see* CONLON, JOSEPH G.
- SOLOVEJ, JAN PHILIP, *see* LIEB, ELLIOTT H.
- SORACE, E., *see* CELEGHINI, E.
- SORBA, P., *see* RAGOUCY, E.
- SORBA, P., *see* SAVELIEV, M. V.
- SPEICHER, ROLAND, Generalized statistics of macroscopic fields, **27**: 97 (1993).
- SPIRIDONOV, VYACHESLAV, LUC VINET, and ALEXEI ZHEDANOV, Difference Schrödinger operators with linear and exponential discrete spectra, **29**: 63 (1993).
- SPIRIDONOV, VYACHESLAV, *see* SKORIK, SERGEI
- STACHURA, PIOTR, Bicovariant differential calculi on $S_\mu U(2)$, **25**: 175 (1992).
- STANEV, YASSEN S., *see* FURLAN, PAOLO
- STERNHEIMER, DANIEL, *see* CONNES, ALAIN
- STERNHEIMER, DANIEL, *see* FLATO, MOSHÉ
- STOILOV, M. N. and R. P. ZAIKOV, A Chern-Simons-like string with W -symmetry, **27**: 155 (1993).
- STOILOVA, N. I., *see* PALEV, T. D.
- STOYANOV, D. Ts., Anomalous quantization of the free Dirac field in three-dimensional spacetime, **29**: 41 (1993).
- STOYTCHEV, ORLIN, The modular group and super-KMS functionals, **27**: 43 (1993).
- STROCCHI, F., *see* ACERBI, F.
- STROCCHI, F., *see* MOSCHELLA, U.
- STUKOPIN, VLADIMIR, *see* LEVENDORSKII, SERGE
- SUN CHANG-PU, FU HONG-CHEN, and GE MO-LIN, The cyclic representations of the quantum superalgebra $U_q \text{osp}(2, 1)$ with q a root of unity, **23**: 19 (1991).
- SUN CHANG-PU, *see* GE MO-LIN
- SUSLOV, S. K., *see* ASKEY, R.
- TAKAHIRO HAYASHI, An algebra related to the fusion rules of Wess-Zumino-Witten models, **22**: 291 (1991).
- TAKASAKI, KANEHISA, Integrable hierarchy underlying topological Landau-Ginzburg models of D-type, **29**: 111 (1993).
- TAKASAKI, KANEHISA, Quasi-classical limit of BKP hierarchy and W -infinity symmetries, **28**: 177 (1993).
- TAKASAKI, KANEHISA and TAKASHI TAKEBE, Quasi-classical limit of Toda hierarchy and W -infinity symmetries, **28**: 165 (1993).

- TAKASAKI, KANEHISA and TAKASHI TAKEBE, SDiff(2) Toda equation – hierarchy, tau function, and symmetries, **23**: 205 (1991).
- TAKASHI ICHINOSE, Note on the kinetic energy inequality leading to Lieb's negative ionization upper bound, **28**: 219 (1993).
- TAKASHI TAKEBE, Representation theoretical meaning of the initial value problem for the Toda lattice hierarchy: I, **21**: 77 (1991).
- TAKEBE, TAKASHI, *see* TAKASAKI, KANEHISA
- TAMIZHMANI, K. M., B. GRAMMATICOS, and A. RAMANI, Schlesinger transforms for the discrete Painlevé IV equation, **29**: 49 (1993).
- TAMURA, HIDEO, Semi-classical limit of scattering length, **24**: 205 (1992).
- TARLINI, M., *see* CELEGHINI, E.
- TCHRAKIAN, D. H., *see* MA ZHONG-QI
- TEMPLE-RASTON, M., Dyons in topological field theories, **23**: 91 (1991).
- TETA, A., *see* FIGARI, R.
- THEISEN, STEFAN, *see* HOPPE, JENS
- THIRRING, W., *see* NARNHOFFER, H.
- THIRRING, W., *see* NARNHOFFER, HEIDE
- THOMAS, III, LAUNEY J. and EYVIND H. WICHMANN, About matrix elements of spatial translations in local field theories, **28**: 49 (1993).
- TODOROV, IVAN T., *see* FURLAN, PAOLO
- TODOROV, IVAN T., *see* IOTOV, MIHAIL S.
- TOLSTOY, V. N., *see* KHOROSHKIN, S. M.
- TOMÁŠEK, R., *see* BURDÍK, Č.
- TÓTH, BÁLINT, Failure of saturated ferromagnetism for the Hubbard model with two holes, **22**: 321 (1991).
- TÓTH, BÁLINT, Improved lower bound on the thermodynamic pressure of the spin 1/2 Heisenberg ferromagnet, **28**: 75 (1993).
- TOTH, GABOR, *see* PETZ, DÉNES
- TRUINI, P. and V. S. VARADARAJAN, The concept of a quantum semisimple group, **21**: 287 (1991).
- TRUINI, P. and V. S. VARADARAJAN, Universal deformations of reductive Lie algebras, **26**: 53 (1992).
- TRUINI, P. and V. S. VARADARAJAN, Universal deformations of simple Lie algebras, **24**: 63 (1992).
- TSOHANTJIS, I., *see* LINKS, J. R.
- TUYNMAN, G. M., Quantization of first-class constraints with structure functions, **21**: 205 (1991).
- TIETMEYER, ERIC, Real forms of $U_q(\mathfrak{g})$, **24**: 49 (1992).
- UBRIACO, MARCELO R., Field quantization in non-Archimedean field theory, **21**: 293 (1991).
- UENO, KIMIO, *see* SHIBUKAWA, YUICHI
- UGLOV, D. B., The quantum bialgebra associated with the eight-vertex R -matrix, **28**: 139 (1993).
- UHLMANN, ARMIN, A gauge field governing parallel transport along mixed states, **21**: 229 (1991).
- URBANIK, W., *see* SOBCZYK, J.

- VÁRILLY, JOSEPH C., *see* CARINENA, JOSÉ F.
VARADARAJAN, V. S., *see* TRUINI, P.
VASSILEVICH, D. V., Abelian gauge theories on homogeneous spaces, **26**: 147 (1992).
VASSILEVICH, D. V., *see* LYAKHOVSKY, V. D.
VASSILEVICH, D. V., *see* NOVOZHILOV, YU. V.
VECSERNYÉS, PETER, *see* FUCHS, JÜRGEN
VERCH, RAINER, Antilocality and a Reeh-Schlieder theorem on manifolds, **28**: 143 (1993).
VERCH, RAINER, Nuclearity, split property, and duality for the Klein-Gordon field in curved spacetime, **29**: 297 (1993).
VINET, LUC, *see* FLOREANINI, ROBERTO
VINET, LUC, *see* SPIRIDONOV, VYACHESLAV
VLADIMIROV, V. S., On the Freund-Witten adelic formula for Veneziano amplitudes, **27**: 123 (1993).
VUGALTER, S. A. and G. M. ZHISLIN, On the discrete spectrum of the negative hydrogen ion with a homogeneous magnetic field, **27**: 163 (1993).
VUGALTER, S. A. and G. M. ZHISLIN, On the finiteness of the discrete spectrum of Hamiltonians for quantum systems of three one- or two-dimensional particles, **25**: 299 (1992).
WALTON, M. A., *see* BEGIN, L.
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WATTS, PAUL, *see* SCHUPP, PETER
WEICH, WOLFGANG, *see* DRABANT, BERNHARD
WEICH, WOLFGANG, *see* HEBECKER, ARTHUR
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WESS, J., *see* OGIEVETSKY, O.
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WIECZOREK, E., *see* BORDAG, M.
WIEDERHOLD, PETRA, *see* MATOS, TONATIUH
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- WORONOWICZ, S. L., Solutions of the braid equation related to a Hopf algebra, **23**: 143 (1991).
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solitons, **26**: 219 (1992).

ZHANG YAO-ZHONG, Loop group-valued CS and WZNW models, integrable systems, and self-dual Yang-Mills theory, **26**: 227 (1992).

ZHEDANOV, ALEXEI, *see* SPIRIDONOV, VYACHESLAV

ZHISLIN, G. M., *see* VUGALTER, S. A.

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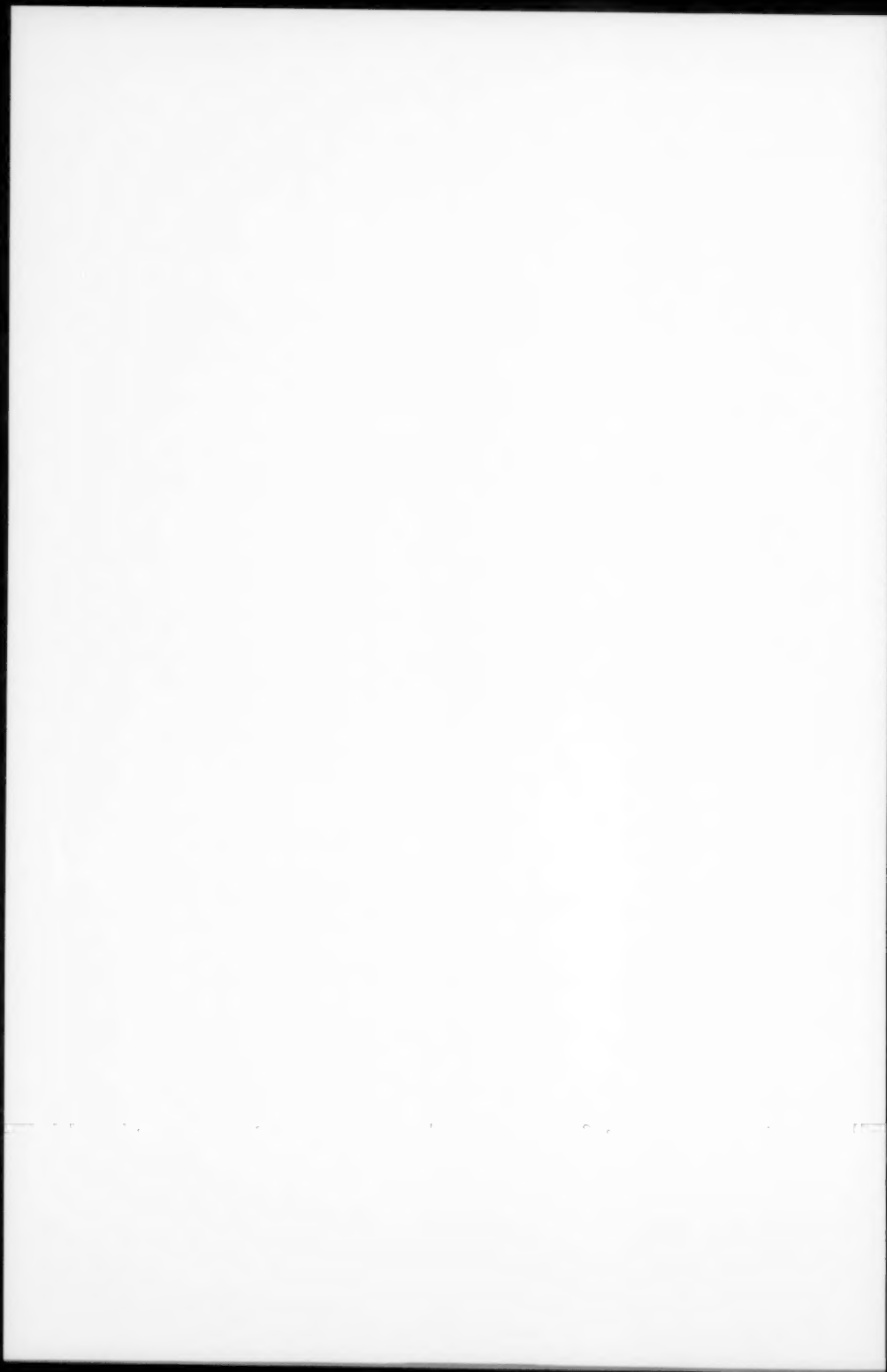
ZHU, Z., *see* CALDI, D. G.

ZUBELLI, JORGE P., On the polynomial τ -functions for the KP hierarchy and the bispectral property, **24**: 41 (1992).

ZUMINO, B., *see* OGIEVETSKY, O.

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ZUMINO, BRUNO, *see* SCHUPP, PETER



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